DRIVER

JANUARY 1984

RESTRAIN yourself

DRIVER

RESTRAIN yourself

The facts make a good case for fastening that belt

Q: *Are safety belts effective?*

A: Approximately 14,000 to 18,000 lives could be saved annually if all passenger car occupants used safety belts at all times. The National Highway Traffic Safety Administration estimates that safety belts reduce the chances of serious or fatal injury by 50 to 65%. Society would also be saved millions of dollars. (The National Safety Council estimates that each motor vehicle death costs society $190,000 — including the cost of insurance administration, medical expenses and lost wages.)

Q: *I don't wear my safety belt all the time, just on long trips and on expressways; isn't that enough?*

A: No! Most crashes (over 80%) occur at speeds *under* 40 mph. Fatalities involving non-belted occupants have been recorded at as low as 12 mph (about the speed you would be driving in a parking lot). About 70% of all accidents occur within 25 miles of home, probably because most people drive locally far more than they drive long distances. Consequently, the chances of being in an accident closer to home are greater. So buckle up before driving to your shopping center, just as you would for a long trip.

ALTERNATE USES

Seatbelts might be useful accessories for other places besides the automobile.

FOR SEATBELTS

(above, left)
On a swing, they could keep you from flying out, just as they keep you from flying out of the car in an accident.

(above, right)
In dangerous places like hammocks, they could make you feel more secure. After you get used to them in your car, you will feel more secure with them than without them.

Q: *Do I need a lap* and *a shoulder belt?*

A: A lap belt will protect you from serious injury. But a shoulder belt provides important additional protection. During a crash, a shoulder belt keeps your head and chest from striking the steering wheel, dashboard and windshield. Using a lap and shoulder belt offers you the best possible protection in the event of a collision.

Q: *How do safety belts work?*

A: A fastened safety belt distributes the force of a collision over the occupant's hips and shoulders — the parts of the body that can best withstand the force. Your belt will also stretch a bit to absorb some of the impact force and, most importantly, stop your body from striking the hard, interior surface of the car or another person.

A car that is traveling at 30 mph will come to a stop within 1/10 second after a collision. Any unbelted occupants will continue to move forward, *inside the vehicle,* at 30 mph. One-fifth second after the car has come to a stop, the unbelted occupants will slam into some part of the car or another passenger — this constitutes the second collision.

Impact during this collision (at 30 mph) is equivalent to a person falling from a height of several stories. Occupants will not have the time nor the strength to "brace" themselves. (At 30 mph, an occupant strikes the vehicle's interior with a force of several thousand pounds.) Second collisions with steering wheels and windshields account for 38% of the deaths in auto crashes.

continued

THE TRAFFIC SAFETY MAGAZINE FOR THE MILITARY DRIVER

DRIVER

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE INSPECTION
AND SAFETY CENTER
Norton Air Force Base, California
92409

AFRP 127-1 VOLUME 17 NUMBER 8
JANUARY 1984

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Entered as a publication at the Second-Class rate (USPS No. 586-430) at San Bernardino Postal Service, 1331 South E Street, San Bernardino, CA 92403.

SUBSCRIPTION — DRIVER is published monthly and is available for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Back issues are not available. Changes in subscription mailings should be sent to the above address. Use of funds for printing this publication has been approved by Headquarters, United States Air Force, Department of Defense, Washington, D.C. No. payment can be made for manuscripts submitted for publication. Contributions are welcome, as are comments and criticism. Address all correspondence to the Editor, DRIVER Magazine, HQ AFISC/SEDD, Norton AFB, CA 92409.

Distribution: One copy for every 9 members of USAF.

ATTENTION DEPT OF THE NAVY PERSONNEL: Address all queries concerning distribution to NAVSAFECEN, NAS NORFOLK, VA 23511, Attn: Safety Publications Dept. All other correspondence will be welcomed by the Editor.

The purpose of this magazine is the prevention of vehicle accidents, and the contents are not directive unless so stated. Address reprint requests, stating intended use of material, to the Editor. The Editor reserves the right to make any editorial changes in manuscripts which will improve the material without altering the intended meaning.

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Hon VERNE ORR
Secretary of the Air Force

Gen CHARLES A. GABRIEL
Chief of Staff, USAF

Lt Gen ROBERT W. BAZLEY
The Inspector General, USAF

Maj Gen GERALD D. LARSON
Commander
Air Force Inspection
and Safety Center

Brig Gen GORDON E. WILLIAMS
Director
Aerospace Safety

PUBLISHED MONTHLY
IN COOPERATION
WITH THE
DEPARTMENT OF THE ARMY
AND THE
DEPARTMENT OF THE NAVY

Dr. FRANCIS S. McGLADE
Director of Safety
United States Army

COMO JERRY C. BREAST
Commander
Naval Safety Center

Col WARREN L. BUSCH
Chief,
Safety Education Division

VIRGINIA HENDRIX
Editor

TSgt RON LATHROP
Technical Editor

JERI ROOD
Feature Editor

CINDY LIGHTHILL
Editorial Assistant

DON KELLEHER
Art Director

ROBERT KING
Staff Photographer

At home in front of the tube, they could hold you in place in case you fell asleep. Automobile seatbelts are designed to hold you in place when you perform quick maneuvers, to help you maintain control of the car.

Q: *Who should wear safety belts?*

A: Everyone.

Children under four years of age and weighing less than 40 lbs. should ride in a child safety seat which meets or exceeds federal standards. *Never* allow passengers to hold an infant or child in their arms. An unrestrained infant will be thrown out of an adult's arms; the adult, in being forced forward, can then crush the infant. For additional protection,

continued

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small children in child safety seats and older children who can use standard safety belts should ride in the rear seat of the car. Pregnant women should wear their safety belt low on the pelvis. Both a shoulder and lap belt should be used to provide an extra safety factor.

Q: *Isn't it safer to be thrown clear in an accident?*

A: If thrown from a vehicle, your chances of being killed are 25 times greater. The force of a collision can fling you as much as 150 feet (15 car lengths). "Thrown clear" is a *misnomer;* leaving the vehicle involves crashing through the windshield or being thrown out a door. Once outside, additional dangers include being scraped along the ground, being crushed by your vehicle or being thrown into a roadside object. The safest place in the event of a crash is inside the vehicle, protected by a fastened safety belt.

Q: *Wouldn't a fastened safety belt delay an attempt to escape from a burning or submerged car?*

A: Less than one-half of 1% of all injury-producing collisions involve some fire or submersion! In such situations your first concern is to stay conscious, so that you can escape. A fastened safety belt will greatly minimize or eliminate potential injuries so that you are *capable* of escaping.

(above)
Or perhaps they could be used for something simple, like keeping your pants up. Car seatbelts have a simple use too — keeping you alive.

(above, right)
Next time you get in the car, remember to "make it click."

make it Click

BUCKLE-UP FACT SHEET

Every 12 minutes 1 person is killed in a motor vehicle accident.* Every hour 5 people are killed in motor vehicle accidents.* Every week 800 people are killed in motor vehicle accidents and 35,000 are injured.*

Motor vehicle accidents are the #1 killer of children age one and older. Each year about 720 children under the age of five die from injuries received in accidents.

The chances of being killed in a motor vehicle accident are 25 times greater when an occupant is thrown from a vehicle.

It is the *second collision* that injures and kills people in an accident. The initial collision is the crash of a motor vehicle into some object. The second collision occurs when unbelted occupants, still moving forward, are stopped by something – the car's windshield, steering wheel, doors, dashboard or other hard, interior surface.

Most motor vehicle accidents happen within 25 miles of home, at speeds of less than 40 miles per hour.

When a driver brakes at a speed of 30 mph, an infant held in an occupant's lap/arms will be thrown forward, even when held tightly by a restrained adult, and will almost certainly strike the dashboard or windshield. The unrestrained occupant will also be propelled forward, probably into and *crushing* the child.

Motor vehicle accidents cost America an estimated $40.6 billion each year. In addition to incalculable grief and emotional suffering, each death is estimated to cost the community $190,000. Even relatively minor injuries create an unnecessary and costly drain on the resources of families and communities.

* Motor vehicle occupants only

National Safety Council

after the CRASH

Planning ahead is a good idea in any undertaking, from buying the proper ingredients to cook a lasagna dinner to packing all the right gear for a skiing holiday. Advance thinking will spare you a lot of inconvenience, like walking out of the store without the mozzarella cheese, or arriving at the ski lodge with only one pole.

Avoiding accidents is the only way to go. But what about when your number's up? What do you do afterward?

The old slogan "be prepared" has its applications on the side of planning for negative occurrences as well. What we're talking about are auto accidents. Obviously we hope you won't have any car crashes, and that's what we at DRIVER try to help you prevent.

But they do happen — sometimes despite our best efforts at defensive driving. Here's where the advance planning comes in. If you know what to do after an accident, you can save yourself not only inconvenience but possibly a lot of legal hassles too.

Let's look at a couple of examples. Sgt X is driving in moderately heavy traffic, smoking a cigarette. He flicks off the ash, and notices that it has missed the ashtray. He takes his eyes off the traffic just long enough to see that it isn't going to set fire to a newspaper on the floor, and plows right into the rear of the car in front, belonging to Mr. S. Sgt X stops his car and goes to Mr. S's car saying, "It was all my fault. I wasn't watching where I was going." He gets Mr. S's name and his license and registration numbers, and he gives the same information to Mr. S. He checks to make sure no one is injured, and he walks to a nearby phone booth and calls the city police and his insurance company. Then he returns to his car and waits for them.

So what did he do wrong? He shouldn't have said anything about whose fault it was. He may learn later that Mr. S had actually contributed to the accident through some error such as improper lane change.

Yes, we realize it may be obvious to some of you. But everyone reacts differently to stress situations — some think clearly and some don't. Unless you've been in a number of accidents — and we hope you haven't — you don't know how you'll react. So it's best to be prepared with a list of what to do. And what not to do.

How about another example? TSgt Z has the green light at an intersection. As he goes through, a car from the cross street runs the red light and they collide in the middle of the intersection. TSgt Z jumps out and shouts at the other driver. While they are arguing, the only other witness to the crash drives away because he is late to a meeting.

Now, if it comes down to the authorities taking the word of TSgt Z over the other driver, there will be no witness to back the sergeant up. His reaction — anger — may have been natural but it ends up costing him a lot of money. It wasn't enough to be in the right; he also has to prove it.

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Even in the case of a relatively minor accident such as this one, you should always get the name of the other driver.

So enough with the bad examples, right? Let's get on to the right way.

Stop: The authorities agree that the first thing you must do is stop. They have a nasty name for those who don't stop — "Hit-and-run driver." You should stop at or near the accident site itself, taking care not to impede traffic if possible.

Warn traffic: The other traffic on the road is the next thing to keep in mind. If the accident is in a hazardous location, like at an intersection or on the freeway, you must alert the oncoming traffic of the mishap. Road flares, if you have them, are good for this purpose, or you might station someone down the road to signal oncoming drivers. If you can, get the vehicles completely out of the way.

First Aid: Next, see if there are injured people involved, and give them what assistance you can. You should check on the injured *first* if the accident has occurred in a non-hazardous location.

If the vehicles cannot be moved, get the people out of them so no one will be injured further if more cars become involved. However, remember that it may be more dangerous to move an injured person than to leave him where he is, depending on the nature of the injury. If his life is endangered by leaving him, move him.

Call the law: This done, you should notify a law enforcement agency about the accident. This should be done even in the case of a minor fender-bender. When you call be sure to give the officers all the information they will need to respond to the accident. Tell them the location of the accident, tell if the road is blocked, if there are injured people, etc. This way, they will know what equipment is required — fire trucks, ambulances, or whatever.

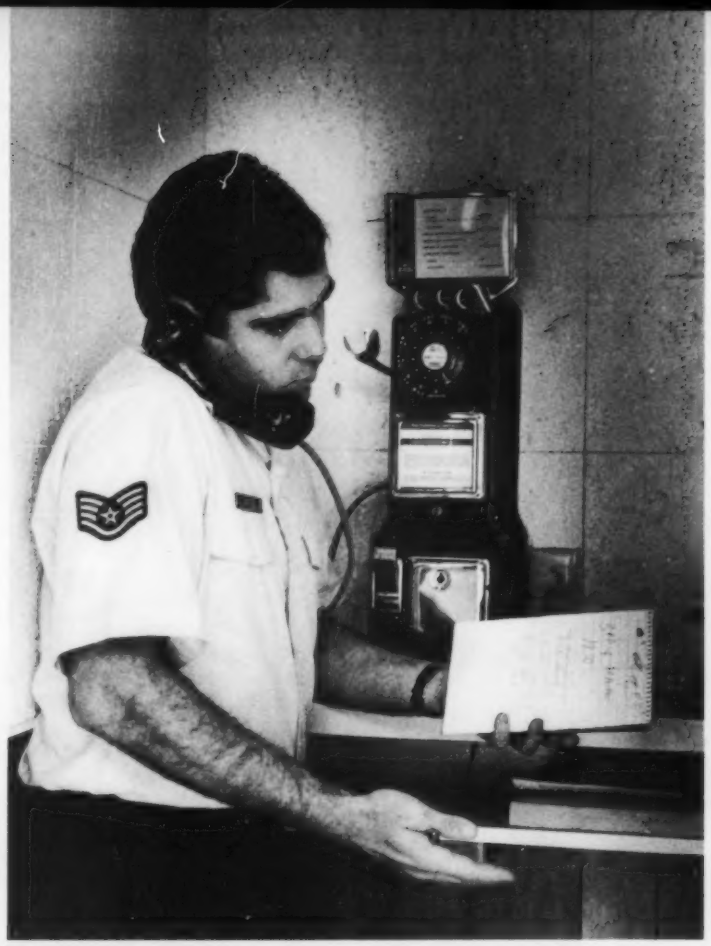
If you are a witness reporting the accident to the police be sure to give them all the details about location and any assistance required.

It may be necessary for you to leave the scene to call the authorities if, for instance, a bystander is not available and the accident is in a remote area. If you leave, be sure to give the other driver your name, address, driver's license number, and vehicle license number (plus the name of the registered owner of the vehicle, if you have someone else's car). This will insure that you are not charged with being a hit-and-run driver, should something delay your return.

And while you're at the phone anyway, it's a good time to call your insurance company. Give them all the details they ask for.

Information: After you return to the scene, you should stand by for the police officers to arrive. While you are waiting, you can exchange the personal information with the other driver, if you have not already done so — names, insurance companies, telephone numbers, license numbers and the like. If there are wit-

"Gee, look what I did to your car! I'm awfully sorry — it was my fault!" The sergeant's heart is in the right place, but his mouth isn't. It would have been better to say nothing about fault to anyone except the police and his insurance man.



On the phone, give the police all the details of the accident so they'll know what to bring when they respond.

nesses who cannot stay, get their names and phone numbers so they can be contacted later.

When the officers arrive, provide them with your driver's license and vehicle registration. They will ask you and the other driver for statements of what happened. They can also tell you about other legal requirements you must meet, if any.

At this time, you should tell the officers your preference in towing service, if your car must be towed away.

Each state will have its own law about the requirement for insurance coverage. For instance, in California the drivers must supply each other with proof of insurance if there is over $250 in damages, or if there are injuries.

No Fault: An important thing to keep in mind is not to discuss the details of the accident, or the fault, with anyone other than the police. Tempers are likely to be hot and it is best not to talk to the other driver, other than to exchange names and insurance companies, and to render assistance. A representative of the California Highway Patrol told DRIVER, "The less contact you have with the other driver, the better."

Calm yourself: Also, you're likely to be more than a little uptight. An auto accident, even a minor one with no injuries, is no small thing. So nervousness is natural.

But you must remain as calm as possible so you can remember what to do. Here, a written reminder may come in handy. Some insurance companies, and organizations like the National Safety Council and the American Automobile Association, have pamphlets that tell you what you should do and when. Get one and keep it in your car at all times, just in case.

Just the facts, ma'am: Certain facts may be helpful to you, if legal action results from the accident. You should get this information after any accident to be on the safe side:

- **Other drivers** — Name, address, phone number, driver's license number, state and expiration date, insurance company, policy number, date.

If the driver of the car is not the owner, you should get the name, insurance company, etc., of *both* the driver and owner. If neither the driver nor the owner is insured there may be nothing you can do to recover for your damages, but check with the legal assistance office to make sure. *Always* check with the legal assistance office when you are involved in an accident.

- **Other vehicles** — Description, registration number, license plate number and state, location and amount of damage, names, addresses and phone numbers of occupants.

- **Injured people** — Name, address and phone number, where taken for treatment, time ambulance called, time ambulance arrived, name of ambulance company.

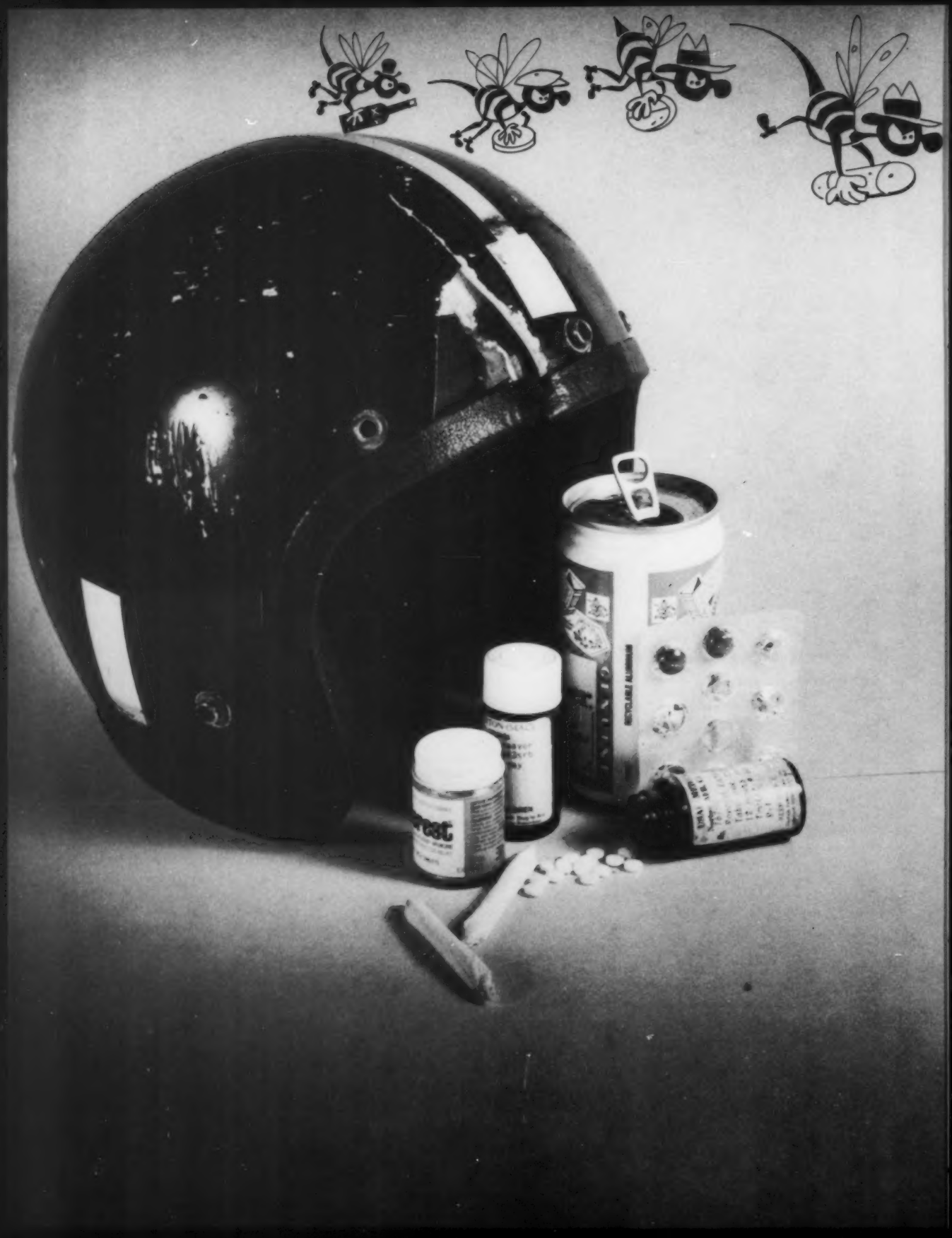
- **The accident** — Location of accident, date and time, weather and highway conditions, diagram of accident site showing position of vehicles before and after and traffic-control devices, description of anything else involved, such as animals or property, details of what happened including contributing circumstances.

- **Witnesses** — Names, addresses, phone numbers, their comments (if possible, get signed statements).

- **Police officers** — Names, badge numbers and department, investigation case number.

That may seem like a lot, but it doesn't take that long to get the information, and you may very well need it.

So plan ahead. It's for your own protection.



Bikers & the Killer Bs*

*** Beer and other Boozes as well as Barbs, Blotters, Bennies, Blow . . .**

Last year an Air Force motorcycle safety instructor was killed on a bike. He was hundreds of miles from his base on leave at the time. Nobody could believe the accident might have been his fault. After all, he was a skilled, experienced motorcycle *safety* instructor.

But as the investigation unfolded, more and more errors in his judgment were found that led to the accident. Then, in a delayed report, the real problem was uncovered: His blood alcohol concentration was reported to have been .19. That is well above the .10 BAC that is considered too drunk to drive.

This is just further evidence that no matter how highly trained and skilled a motorcyclist is, drinking erases all the advantages and leaves the biker as just another victim, or worse, statistic.

University of California researcher Dr. Hugh ("Harry") H. Hurt Jr. completed a study of 900 motorcycle accidents in detail in 1981. He found that nearly 12 percent of the 900 riders "had some alcohol or drug involvement and some degree of impairment." His study also showed that injury severity increased for those riders drinking alcohol. "Similarly," Professor Hurt reported, "41 percent of the riders killed had some alcohol or drug involvement."

According to the Motorcycle Safety Foundation other studies show that motorcyclists who have been drinking are involved in many more single vehicle accidents than sober riders. The drinking rider also is overrepresented in accidents where another vehicle violates the motorcyclist's right of way. This points to a lack of awareness and judgment on the part of the motorcyclists; these two mental processes can be impaired after a single drink.

Motorcyclists often assert that operating a motorcycle requires more coordination, more perceptual skills, more concentration and more judgment than driving a four-wheel vehicle. Yet these are the very processes that are affected by alcohol.

Alcohol is a depressant and acts as a sedative on the brain. Although many people feel stimulation when drinking, this effect is indirect.

The actual effect of even a small amount of alcohol is depression of those parts of the brain that control judgment, self-control and inhibition. It is the release from inhibitions that most people mistake for stimulation.

As greater amounts of alcohol enter the system, the more primitive parts of the brain are depressed. These parts of the brain control coordination and physical reflexes.

Alcohol is alcohol, regardless of the source. All alcoholic beverages contain ethyl alcohol which is commonly called grain alcohol. It results from the fermentation of sugar by yeasts.

The difference in beer, ale and wines is the source of the sugar (barley or grapes). The so called "hard" liquors are made from the distilled product of fermented grains or other sugar sources. It's the distillation that concentrates the alcohol content.

Regardless of the source and/or process, when alcohol enters the system, the effects are the same. Beer drinkers are taking in no less "effect" than bourbon drinkers.

The average beer has four to six percent alcohol and is usually taken in 12-ounce "doses." Wine has 12 to 16 percent alcohol but is taken in smaller four-ounce doses. Liquor that is 86 proof has 43 percent alcohol, but is taken in an even smaller 1 to 1¼ ounce dose.

As has been said many times before, the source of the alcohol doesn't matter. It's the dose of pure alcohol that counts. One 12- to 16-ounce can of beer contains one dose, a half ounce of pure alcohol. A three- to four-ounce glass of wine contains one dose. And a shot (1 to 1¼ ounce) of 86 proof whiskey has the same dose, a half ounce of pure alcohol.

While many people think a beer contains less alcohol that a standard mixed drink, it doesn't. The only real difference is that it takes longer to drink the 12-ounce beer than it does the cocktail. Also, the beer is usually more filling. Actually, the alcohol content is the same, a half ounce. Also, cocktails are sometimes mixed stronger than with the standard shot, making them equal to two normal servings of beer or wine. In other words a double is a double dose.

The same amount of pure alcohol may affect two different people at different rates. How quickly the alcohol is absorbed into the blood system is affected by the individual's body weight as well as the food or liquids in his or her stomach. However, such factors don't affect the total amount of alcohol absorbed. All the alcohol still gets in the blood. And once the alcohol is in the blood, the effects on the brain are usually equal for an equal amount of alcohol in equal size people.

While there are ways to slow down alcohol absorption into the blood, the best way is simply to drink more slowly.

Eating will slow down alcohol absorption, but it won't prevent those who drink too much from getting intoxicated. High-protein foods such as cheese and meats are especially good because they stay in the stomach longer. Therefore, it's a good idea to eat high-protein food such as crackers and cheese, deviled or hard-boiled eggs, pizza, raw vegetables with dip, seafood or meat when drinking.

A physically large person can have two drinks and only be affected moderately,

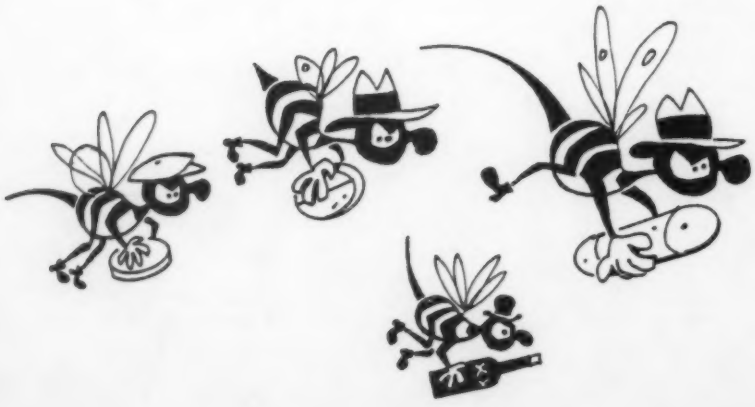
continued

(left)
Drugs, regardless of whether they are obtained illegally, taken as prescriptions, bought over-the-counter, or consumed from a can of beer, glass of wine or shot of whiskey, can make motorcycle riding dangerous if not fatal.

continued

Even over-the-counter drugs such as cold tablets and allergy remedies can lessen a cyclist's riding ability.

Braking, reacting to environment, road surface awareness, turning speed selection, lane positioning, defensive riding abilities and evasive maneuvering are vital motorcycling skills that can be impaired by just one drink — be it beer, wine or whiskey.



while a smaller person could become very intoxicated on the same amount. Since smaller people have less blood in their systems, the same amount of alcohol accounts for a larger percentage once it's in their blood than it would in a larger person.

The amount of alcohol in the blood is measured as a percentage called the blood alcohol concentration. A BAC of .10 means that the blood system contains about one-tenth of one percent pure alcohol. In most states, a person with .10 BAC is legally intoxicated. However, impairment starts long before this BAC is reached.

Once alcohol is in the blood system, it can only be reduced by allowing the

Three drinks and the ability to scan, shift, control the throttle and see at night become impaired.

liver time to oxidize and eliminate it. The liver burns off alcohol at the rate of about one dose (a half ounce of alcohol) per hour. One drink at 6 p.m. and another at 7 p.m. leaves one drink in the blood system. Two drinks at 6 p.m. and one at 7 p.m. leaves two.

But remember, any alcohol in the blood system is depressing mental capabilities.

Also, showers and coffee won't make a drunk sober. Only time will do that. Showers and coffee may make the drunk feel more awake, but they won't reduce drunkenness.

While the heavy drinker may develop the ability to "handle" liquor more than a light or infrequent drinker, the effect on the brain is much the same. The heavy drinker has simply learned to mask the visible effects. A motorcyclist may show no outward signs of intoxication but still be unable to ride safely.

The process for handling any hazard as a rider or driver is always the same. The operator must identify the hazard, predict what will happen, decide what action to take and execute that action. One or two drinks in the blood system and the operator's brain functions of restraint, awareness, concentration and judgment are affected. This severely limits his or her ability to predict and decide.

Three or four drinks and abilities such as depth perception, glare recovery, eye movement and focus are handicapped. That limits the operator's ability to identify. With five drinks in the system the coordination goes and with it the ability to execute.

According to Dr. S. Franklin Sher's "The Drinking Driver In Action," after only one drink, five out of 100 people are already too intoxicated to drive, but they show no signs of intoxication. After two drinks the number too drunk to drive jumps to 15, with only five appearing drunk. Three drinks and 35 out of the 100 are too drunk to drive, but only 10 show the affects. Four drinks and the numbers are 65 out of 100 too drunk, with 10 showing it.

After five drinks, Dr. Sher says all 100 people are too intoxicated to drive, but only 40 appear that way. In other words, 60 percent of the people who drink and drive may not show visible, outward signs of intoxication but are too drunk to drive.

Basically, alcohol is a drug. Although some comparisons can be made between alcohol and other drugs, for the most part alcohol is unique. It's a single substance with a simple chemical structure. Its action inside the body is fairly simple and easy to understand and it's rarely used directly for medical purposes. And, although it's often abused, it's a legal drug usually approved by society.

Other drugs may include a number of substances. Many are products of modern chemistry. Their action in the body is usually much more complex than that of alcohol. Unlike alcohol, which "burns off" after being in the blood system for a while, other drugs remain in the body for long periods of time. Sometimes a drug's effects may continue after it can no longer be detected in the blood. In other cases, a drug may be detected in the blood after its action has stopped. Different drugs, or even the same drug, have widely different effects on different people.

The question here is not whether drugs are addictive, "morally" right or wrong, legal or illegal. The only question is the effect on a rider's ability.

continued

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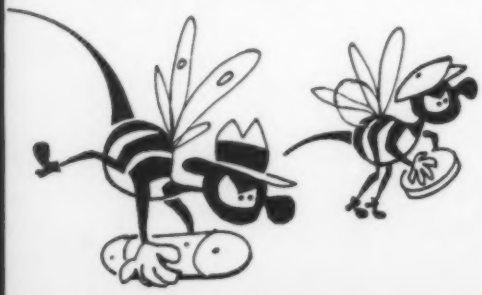
After five drinks coordination deteriorates, critical judgment is lost, memory impaired and comprehension reduced to the point that a motorcyclist can no longer properly maintain balance when riding in a straight line, let alone when leaning during a turn.



The fields of medicine and science haven't yet developed the measurable cause/effect data for drugs like that available for alcohol. So far, there are too many variables and too many unknowns to be precise.

However, there have been a lot of studies done on the effects of drugs on driving behavior while not much has been done relating drug use to motorcycle accidents. As with alcohol, however, it can be easily assumed that the adverse effects of some drugs on driving behavior will be magnified when riding a motorcycle.

The best that DRIVER can do is identify some drug types, list their effects and let you judge for yourself.

Depressants are sedatives, barbiturates and tranquilizers. They are also called quaalude, librium, soaper, parest, yellow jackets, red devils, phennies, blue heaven, valium, PCP, angel dust, etc. They are taken to escape boredom, self-consciousness and inhibitions. Their effects include confusion, lack of coordination, depression, drunken appearance, slurred speech, quarrelsome disposition and quick temper. In other words, they impair every vital riding skill.

Deliriants are sniffed. They include gasoline, glue, lighter fluid, paint thinner, varnish, shellac, nail polish remover and spray paints. People do them for kicks, escape and excitement. Their effects are mild intoxication followed by excitement and exhilaration, *then* loss of coordination, distorted perception and extreme confusion.

Stimulants include amphetamines and benzedrine. The most common street or social drug now is cocaine, also called coke, snow flake or gold dust. Other names of stimulants include speed, bennies, dexies and crystal. They are taken to increase alertness, pleasure, thrills, self-confidence, as well as to stay awake, lose weight and pep up. The effects are feelings of self-confidence, alertness and pleasure, often followed by depression and extreme fatigue when the drug wears off. Overdoses may result in hallucinations.

Stimulants impair a rider's ability to judge the riding environment, be aware of road surface, perceive other vehicles, select turning speed and ride defensively.

Marijuana is, of course, called grass, weed, pot or a joint. It is taken for a sense of euphoria, relaxation and well-being. Marijuana alters the time/space perception, fragments thought, impairs immediate memory, increases suggestability, increases reaction time and contributes to poor glare recovery.

Road surface awareness, scanning, perception of other vehicles, night vision, turning speed selection, braking, defensive riding abilities and evasive maneuvering are all problems encountered with marijuana.

Finally there is heroin which is also known as H, horse, junk, hard stuff, white stuff, smack and scag. It's taken to escape reality, mental or physical problems, and is intentionally used by pushers to hook the user. Its effects are a "rush," tingling and then drowsiness, day-dreaming, constriction of the pupils, stupor and, of course, physical addiction. Needless to say, it impairs every vital riding skill.

Regardless of morality, legality and whether the effects are lasting or addictive, the symptoms and effects do NOT improve or enhance a motorcyclist's chances of surviving a two-wheel ride.

Similarly, having a prescription for a drug doesn't make it safe to operate a motorcycle after having taken the prescribed dose. And many over-the-counter drugs have adverse effects on a motorcyclist's riding skills, too. Even cold tables and allergy remedies can lessen a cyclist's riding ability by reducing vision, perception and alertness.

Whether a drug is an "upper," a "downer," a beer, a glass of wine or a shot of whiskey, the immediate or delayed effects impair mental or physical processes — many affect both. Coordination, judgment and reactions are vital for all drivers, but even more so for motorcyclists. The coordination and awareness needed to ride a motorcycle safely allows no room for impairment of any kind.

According to the Motorcycle Safety Foundation, most people ride motorcycles because they enjoy close contact with the machine and the riding environment. Use of alcohol and other drugs before riding a motorcycle can only inhibit the intimate relationship between the motorcyclist, the machine and the road.

ACCIDENTS WAITING to Happen

Nobody knows how many accidents waiting to happen are on the roads. But one thing is for sure: The number is increasing.

The subject isn't drivers but their cars. Specifically, lightweight "unibody" vehicles that have already been in an accident and repaired. The problem is, of course, faulty repairs.

Unibody is a way of constructing cars with the body, floor pan and chassis as a single unit. Because they don't have a frame and are lightweight, downsized cars with front-wheel-drive, unibody vehicles tend to suffer more damage in accidents and are harder as well as more expensive to repair.

There are a number of repairs that, if done wrong, can cause accidents.

Primarily, there's always going to be the problem of repair shops not replacing defective parts. This can be compounded on unibody cars when mechanics bend certain parts to compensate for body distortion. The results can spell disaster: increased tire wear, noise, poor handling, mishandling and, of course, another accident.

Another hazardous situation develops when repairers reinforce the rails that run along the underside of unibody cars. These rails were originally designed to absorb energy in an accident by collapsing like an accordion. If these rails are reinforced and there is another accident, there is a very real risk that the impact could push the rails into the passenger compartment, causing severe injuries to the occupants.

However, the most dangerous repair to unibody vehicles is "clipping." Clipping involves cutting a badly damaged car in half and welding the undamaged half of another wreck to the original vehicle.

Clipping is relatively safe with a conventional car because the frame joint can be reinforced by overlapping steel plates. Reinforcing the joints on a unibody creates stiffness in sections that were engineered to crush in an accident and endangers the passengers just as reinforcing the rails does.

Additionally, clipped cars may be structurally unsound. Both halves have been stressed in previous accidents. And the welding can overheat the metal and weaken it around the joints.

If you haven't already guessed, clipped cars have been known to crack and split open. This can happen in another accident or it can just happen and cause another accident.

The blame cannot be laid solely at the feet of the repair shops. In most cases they get only about half the hourly rate for their work that mechanics charge. So it should be no surprise to find some of them doing second-rate work.

Other parties who must share in the blame are insurance companies and owners. There are insurance companies that are so concerned with cutting costs that they authorize unsafe repairs. This can result in cars being sent back out on the road that should have been "totalled."

A car is usually totalled when the cost of the estimated repairs plus the vehicle's salvage value equals the car's market value.

This is where some owners come to shoulder some of the blame for the unsafe cars being on the road. Many insurance companies will accommodate an owner who is fond of his or her car by paying him or her the car's market value less deductible and salvage value. Then the owner can have the car that should have been totalled repaired. To save money, since the insurance settlement is less than the costs of adequate repairs, the owner gets a cheap fix-up and, of course, an unsafe vehicle. Still other owners are forced into doing this because the car is financed for more than it's worth.

How do you protect yourself from buying a car that shouldn't be on the road in the first place? You take any vehicle you're planning to buy to a reputable mechanic for a complete checkup. The mechanic will put the cosmetic beauty you're looking to purchase on a rack and take a few measurements. A good mechanic will spot a disaster before it becomes your accident waiting to happen.

In response to readers' requests, we present two more true accidents.

The Way it Happens

By Capt. B.J. STANTON
Colorado Springs, Colo

It was 0638 on 10 November 1983, and my routine was essentially normal. The sun wasn't quite up yet since we were well into fall, but it would be only five or six minutes before its brilliant rays were piercing the horizon. I knew that because I normally take note of the actual time of sunrise. No real reason, I just take an interest in watching the days get shorter as winter approaches. I got into my Datsun pickup and cranked it up for the trek into work. It sputtered to life with protest after cold-soaking all night in the crisp Colorado air. After a brief warm-up, I started out on a 20 minute drive. Within a minute I was out of the maze of residential streets and onto the four-lane divided boulevard that connected my housing area with many others, some of which were still under construction. Since we live in a relatively new development, I was almost assured of having the road completely to myself, especially at this hour. I shifted from first gear to second, and then to third. There was one of the four cylinders that hadn't quite made up its mind to contribute to the cause so I stayed in third gear for the time being. No problem. I'd just take it easy until the engine warmed up enough to function coherently. About 400 yards down the boulevard was an intersection where another large avenue crossed. I had the right-of-way through it; those on the avenue had stop signs to obey. But there were no others now. It would be at least another half hour before the traffic picked up to feed the nearby high school with its echelons of students and teachers.

I was about 50 yards from the intersection now. My velocity was just over 30 mph. I was suddenly aware of a car coming toward the intersection from the right. But something was wrong. It was his speed. He was not slowing down! Why hadn't I noticed him before? That is probably best described by intercept geometry. Many times while practicing airborne intercepts in the F-4D Phantom over the North Sea off the coast of Britain, I had had the opportunity to witness the perspective of a "collision course" between two aircraft. It is actually just a triangle. Imagine the flight paths of the two aircraft being two legs of the triangle. The crash point is where the two flight paths cross. The third leg of the triangle is formed by an imaginary line connecting the two aircraft. Assuming the aircraft are at equal airspeeds, there is a unique quality about the triangle. The sides of the triangle are getting shorter as the two aircraft approach the collision point, but the angles of the triangle are NOT changing. Said another way, when viewing the intercept from the cockpit, the other aircraft is stationary on your canopy. You see no RELATIVE movement; he is just getting larger as he draws closer and closer. So that was it. I had not seen the other car before now because we were on a collision course and he had exhibited no relative movement on my windshield. Furthermore he did not see me because I was not moving on his windshield. And to complicate matters, the glow of the imminent sunrise served as a backdrop of my silhouette to him.

My reaction time to the situation was probably at least a second. At my speed, that carried me around fifty feet closer to the impact point before any action was taken. Instinctively I slammed on the brakes, but it was academic at this point. The crash was inevitable.

I remember very clearly the events which follow. At the instant of impact there was an immediate deformation of the right interior portion of the truck cab along with the cracking of windshield. The right door bulged toward me; the passenger area shrunk. I was aware of being thrust laterally as my truck gave way to the force of the colliding car. My briefcase was sitting upright between the two bucket seats as it always did, and my right arm was resting on it. The briefcase rammed into my ribcage and cracked into pieces like a brittle shell. But I was not aware of any acute pain. I thought to myself this is logically the worst part of the accident and I have made it through it. Therefore everything is going to be okay. But I had failed to realize the full consequences of the lateral momentum that had been imparted to me. Within a fraction of a second my truck began to roll counterclockwise as I was looking forward through the cracked windshield. No sweat. This reminded me of an aileron roll. But I had never done one at

About the author:

Captain Stanton is a distinguished graduate of the U.S. Air Force Academy, Class of 1973. As an undergraduate, his work included research in the security of defense communications systems. He completed Undergraduate Pilot Training with top honors in 1974 and Advanced Fighter Training in 1975. He served as an F4D Aircraft commander and Wing Weapons and Tactics officer at Royal Air Force Base Woodbridge, England, from 1975 to 1978. During that time he participated in joint NATO force exercises and taught laser weapon tactics. From 1978 to 1981 he served as an AT-38B fighter instructor pilot and academic instructor. His duties included aerial instruction in basic and advanced fighter maneuvers, surface attack tactics, low-level ingress techniques, and various tactical formations. Additionally, he was responsible for significant phases of the surface attack academic curriculum. In the fall of 1981 he returned to graduate school in Electrical Engineering. He was awarded a Master of Science in Electrical Engineering and Computer Science from Massachusetts Institute of Technology in December 1982. He was assigned to the U.S. Air Force Academy in January 1983, and he currently serves as an instructor with the Department of Electrical Engineering, as well as a T-41 instructor pilot. He is an experienced fighter pilot with 1160 hours of flying time.

this altitude before, and it wasn't as graceful as an F-4. The next time my truck made solid contact with the pavement was after it had rolled over 180 degrees. It came down on the passenger side of the roof and caved it in somewhat. The passenger area became smaller still. It was this particular impact with the pavement that shattered the windshield completely and turned it into a mosaic of glass fragments. It remained intact, however. The roll continued until I was upright again. I was relieved that my portion of the cab was still secure and I was convinced that I had come to a stop.

But what was happening? The horizon that I saw through the shattered windshield was rotating. The truck was still rolling! It was slower now and more deliberate; it almost felt as if it was pausing at each 90-degree point, similar to the Thunderbirds' four-point roll. I was now decidedly ready for this bizarre carnival ride to be over with. I had had my money's worth. By sheer luck the second roll ended with the truck upright on its wheels.

During the entire time I was gripping the steering wheel with both hands and looking straight ahead. My position and posture never changed. My seatbelt and shoulder harness had kept me securely in place. To speculate the outcome without the seatbelt is actually quite simple. Upon initial impact, the law of inertia would have caused me to slide to the right out from my seat and over to the passenger compartment. My legs however would have remained in the clutch and accelerator area. I would have been stopped by the right door which was now leaning into the passenger compartment. Assuming that I was still conscious at that point, the roll upside down and the crunching of the roof onto the pavement would have insured that I would not have witnessed the remainder of the ordeal.

I sat there for a few moments collecting my thoughts and remaining perfectly still. I knew that serious injuries are sometimes numb at first so I thought I would wait to see if anything developed. I looked into the rearview mirror to inspect myself. Not bad. Only a few tiny cuts from spraying glass. They looked more like shaving nicks, only I had used an electric razor that morning. I became aware that the back of my neck was cool. It felt wet, but where could the water have come from? I didn't see any spray from the broken radiator, yet I was wet. It never occurred to me that it was blood. The laceration was on the top of my head, but it turned out to be so minor that it didn't even require any stitches. As I sat there, I was able to inspect my surroundings. On my side, the instrument panel, dashboard and steering wheel were somewhat contorted but essentially undisturbed. To my right was a different story. The cab was significantly deformed and crumpled inward. There was little resemblance of the neatness and order that had existed only seconds before.

The other driver came running over and yanked open my door. He was young and frightened. "Are you okay? Are you okay? I'm sorry, I'm so sorry, mister," he blurted in a trembling voice. He unlatched my seatbelt, and I slowly got out of my truck. I walked away and looked back at the spectacle of rearranged metal and glass. The truck was now at the far curb of the opposite lane, and it was perpendicular to the boulevard. The time was 0640, less than two minutes since I had left home.

My story is at an end. After being thoroughly checked over at the hospital, I was released with only minor cuts and bruises. Moving about required a certain amount of effort due to strained muscles, but at least I was in one piece. So what's the point? Let me restate it: I slowly got out of my truck and walked away. The reason: Seatbelts!

A Reason for Dying

By A1C JAMES BELL
Travis AFB, Calif.

We were both young and in love. She was beautiful and successful. We had become very attached to each other and cared for each other as if there were no other person on earth.

I had finally gotten my 30-day leave, after waiting a long 13 months for it. The two of us drove to my home in Texas. She finally got to meet my family, and we had the best vacation I ever had in my life — one I would never forget, although now it's for different reasons.

She had secured the job of a lifetime just before leaving the Fairfield area and was eager to get back to it and get started. We left my home town early so that we would have plenty of time to drive back to Travis AFB, Calif. We started out early in the afternoon of Friday the 25th of June. We were planning to stop in Las Cruces, N.M., for the night.

We were a hundred miles out of nowhere, on the most desolate spot of the interstate. She was driving and looked over to see a picture in a magazine that I was reading. We both felt the left tires leave the road as the car drifted onto the shoulder. Both returning our attention to the road, we saw that we were just a little onto the shoulder. Nothing to worry about, just slow down and ease the car back onto the pavement.

Instant reaction getting the best of her, she jerked the wheel to the right. The wheels cut into the asphalt, as inertia kept the back end going straight. We fishtailed to the right, and she countered in that direction. The car snapped left, and

continued

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pointed its direction of travel off the road, and onto the center median, a 50-foot span of dirt, rocks and brush.

The car continued to swerve until it was going sideways through the dirt. I looked out my side window and saw the ground passing under me, sideways at 50 mph. I felt the car go over and told myself to hang on. I remember seeing the ground slam into the door and smash the side window as the car rolled upside down. I looked up through my sunroof and saw dirt and grass flying in. I do not remember what I was holding onto. I did not stop to think my seatbelt was holding onto me. We rolled over three times and finally came to rest rightside up, in the righthand lane of traffic on the opposite side of the road. All in all a full 225 feet from where we initially lost control of the vehicle. The sounds of smashing glass and crunching metal were replaced by eerie silence. Not even the wind.

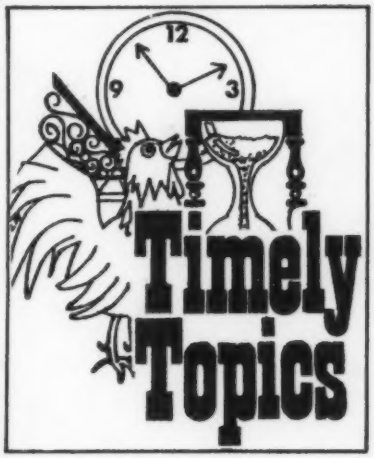
At first I almost started laughing. I had never been in a rolling car and it felt more like a wild roller coaster ride. I looked over through the dust, still thick in the car, to console my fiance knowing her nerves would be shot. My heart stopped. SHE WAS NOT IN THE CAR! Two years prior, I had witnessed an accident in which a young lady was killed when her car rolled over in much the same way as mine did. She was not wearing her seatbelt and had her skull smashed on the pavement as she was thrown out. Those painful memories went through my mind again.

With blinding speed, I undid my seatbelt, threw open the door and jumped out of the car. I was bare-footed and ran right through the glass fragments that once made up the windows of my car. Then I saw her laying face down, off the side of the road amid debris and strewn out personal affects. I ran up to her yelling out her name. She did not answer. I turned her over and stared in disbelief as bright red blood ran out of her mouth. I am CPR and first aid qualified and I did not know what to do. Seeing the only person that meant anything to me laying there unconscious and not breathing, I just did not know what to do.

Finally recalling my first aid, I cleared her airway and started mouth to mouth. The only response was a gurgling sound as blood ran into her lungs. I stopped to assess the extent of her injuries. Then I felt the skull fracture. A quick check of her eyes, dilated and non-reactive. My heart sunk, for now I had to face the fact that she had died. I did not want to believe it. I lay by her side and cried as cars stopped and people gathered around. The autopsy report states that she died instantly upon hitting the side rear view mirror as she flew out the driver's window. Dead before she ever reached her final resting point 25 feet from where she came out of the car and 40 feet from the final resting point of the car.

I have difficulty accepting that she is gone, and I was there when she said her last words and breathed her last breath. I know she is gone, but have not accepted the fact that I will never see her again. But even harder, how do you explain to her brother and sisters, mother and father, and hardest of all, her four-year-old daughter just why she died in my car and I did not. I could only say five words: SHE WASN'T WEARING HER SEATBELT!

How many times does it have to be preached before someone believes? I live by seatbelts, literally. They are not put in there for security police to have something extra to hassle you about. They are put in there to save your life, and they do work. Think about my fiance next time you go driving without your seatbelt on. She died for no reason whatsoever. But if your life can someday be saved because you remembered to wear them, that would give some meaning to her death. Yes, seatbelts do work, but don't take my word for it. Ask my fiance. I'll take you to the cemetery where she is buried.



CHILD SEATS

Car safety seats are saving children's lives, but their misuse is also leading to unnecessary deaths, says the National Transportation Safety Board. Only six of 34 child car seats used in crashes studied by the National Transportation Safety Board were used correctly. Five children died and three were injured. The Board says proper use of the seats could have prevented death or injury to six of those children.

Some of the problem seems to arise from the fact that instructions for using the seats are too complicated and so people are neglecting important things. For example:

- The safety harness must be properly fastened around the child.
- The car safety belt must be passed through the child seat.
- The seat's tether strap must be secured to the car seat.

Forty-one states and the District of Columbia now have laws requiring the use of the safety seats.

MOTOR HELMET SAVES A LIFE!

A recent two-wheel and four-wheel PMV mishap at Seymour Johnson AFB graphically demonstrates the importance of using vehicle personal protective equipment.

An individual was operating a 650cc motorcycle on an off-base, two-lane, paved street at approximately 60 mph. A four-wheel PMV which had been traveling in the opposite direction had just completed a left turn across his path of travel and was entering a parking lot driveway.

The motorcycle operator failed to decrease his speed to avoid an accident. The front of the motorcycle struck the right rear bumper of the automobile. The force of the impact caused the rear of the auto to skid 90 degrees to the left on the dry pavement. The four-wheel vehicle operator was wearing the protective shoulder and lap belts installed in the car and was not injured. The motorcycle operator was thrown from the motorcycle approximately 30 feet and landed on the edge of the pavement. He sustained a compound fracture of the right leg and cracked a bone in the right foot. He was wearing a protective motorcycle helmet with face shield. The attending physician told him he probably would not have survived the accident if he had not been wearing a helmet.

SHOULD THE AIR BAG CAMPAIGN BE BAGGED?

Lap and shoulder belts are more practical and effective than air bags in improving highway safety, says an article in the American Council on Science and Health's *News & Views*. The article notes that air bags provide no protection for back-seat occupants; protect front-seat occupants only in frontal collisions which account for 20 percent of accidents; and provide no protection in accidents that occur when the car's ignition is off. After one use, an air bag must be replaced at a cost estimated at $1,500. Safety belts protect all occupants in all types of crashes, the ACSH says.

IT'S A MISTAKE

In the November 1983 DRIVER, "Whiskey, With a Coffee Chaser" on page five lists the legal limit of intoxication in the United Kingdom as .8. The actual figure is, of course, *.08*. Anyone with a .8 Blood Alcohol Content would be dead. DRIVER regrets this error.

AMA ANNOUNCES CYCLE-GARD INSURANCE PROGRAM

The American Motorcyclist Association has reached an agreement with the Criterion Insurance Company of Washington, D.C., to offer a motorcycle insurance program to AMA members.

The program, called AMA/Cycle-Gard, will offer members complete insurance coverage at competitive rates, with special discounts tailored to AMA riders. For instance, AMA/Cycle-Gard will offer discounts to experienced motorcyclists — those who have been riding at least three years and have had no more than one minor traffic conviction during that time. That discount will apply to married riders over the age of 25 and single riders over the age of 30. There are also discounts for completion of Motorcycle Safety Foundation rider courses and a second-year renewal discount.

Special services offered through AMA/Cycle-Gard include $50 road-service coverage (to pay for emergency service and towing) and theft insurance for off-road bikes owned by members who insure their street bikes through AMA/Cycle-Gard. The coverage will include the 24-hour-a-day, seven-days-a-week, country-wide claim service network.

In setting up the AMA/Cycle-Gard program, the AMA sought to make it available to riders across the country. No single insurance carrier was able to provide coverage in every state, but AMA/Cycle-Gard coverage will be available in 40 states and the District of Columbia. The program will be open to AMA members in every state except Connecticut, Delaware, Kansas, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina and South Carolina.

To make the program accessible to members, Criterion has established a toll-free telephone number which AMA members can use to get more information and rate quotes. Members can call (800) 638-8760 and ask for "extension AMA" for this service. Sales and policy service also will be available through 90 Criterion offices in 28 states.

NHTSA PREDICTS UPWARD TREND FOR VEHICLE FATALITIES

A new NHTSA forecast of vehicle-related fatalities through 1990 indicates that despite a sharp decine in 1982, motor-vehicle deaths "will resume their longterm upward trend for the remainder of the decade and reach a level of approximately 50,000 by 1990."

This is based on the number of drivers and vehicles and a return to higher rates of economic growth.

NHTSA added: "Although the absolute number of fatalities is expected to increase, the relative risk per unit of travel is expected to continue to drop as it has over the past half century."

Recent drops in vehicle fatalities have been attributed — at least in part — to the effect of the recession, especially the fact that the most vulnerable group, males between 18 and 25, have less money to buy cars and less money to drive them.

Another cause of the low 1982 death toll is attributed to possible increased use of safety belts and to burgeoning local anti-drunk-driving campaigns. Both of these programs are spearheaded by NHTSA.

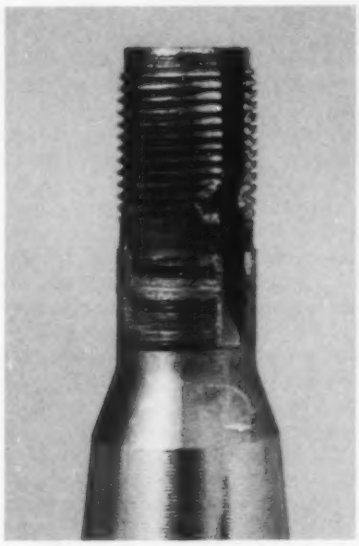
(AutoMotive News)

CHECKPOINTS TO STOP DRUNK DRIVERS

Neither high accident rates nor tough laws discourage drunken driving, says Jim Burnett, chairman of the National Transportation Safety Board, who has called for the use of driver sobriety checkpoints. The checkpoint system is already in use or being considered in 18 states. Police stop a predetermined number of cars and ask the drivers a few questions while looking for signs of intoxication. Drivers suspected of driving while under the influence of alcohol or drugs are directed to a second point for further investigation. Burnett said alcohol-related traffic accidents cause 25,000 deaths and an economic loss of $21 billion annually.

AUTOS UNDER-MAINTAINED

"All available evidence — including winter starting trouble statistics, surveys of mechanics' experiences and random condition checks of hundreds of vehicles — seems to conclude that the fleet of personal cars being driven today by Americans is increasingly under-maintained," says James O. Boord, Champion Spark Plug Company's assistant director of automotive technical services. According to Champion Spark Plug surveys, only 65 percent of the cars on the road received a tune-up during the last 12 months. The same survey made 10 years ago showed over 75 percent of the cars on the road would have had a tune-up.



(above and right)
These wheel bearings were never inspected, repacked and adjusted. As a result they failed and had to be chiseled off, ruining the spindle as well.

With the wheels blocked and the vehicle firmly supported, the job begins.

WHEEL BEARINGS

So that your car can roll along easily, the wheels revolve on ball- or roller-type anti-friction bearings. The bearings for the non-drive wheels (front on rear-wheel-drive and rear on front-wheel-drive vehicles) require periodic inspection, repacking and adjustment.

On the drive wheels the bearings have lubricant permanently sealed in and are not touched unless there is a special reason for removing them. Then they usually must be replaced once removed.

Although manufacturers' recommendations differ, the wheel bearings should be inspected, repacked and adjusted at least every three years or 30,000 to 40,000 miles (whichever comes first). But since you are going to have the bearings open when you check your brakes annually or every 15,000 miles, you might as well do the job then. It's also a good idea to replace the wheel bearings every eight years or 80,000 miles as part of a preventive maintenance program.

Basically, wheel bearings carry the thrust from car loading, road and braking action, as well as the side thrust when the car goes around a corner or the tire strikes a curb, pothole or other obstacle.

The bearings are mounted on a short shaft called a spindle. The inner part (cone) of the larger bearing fits against a shoulder on the spindle. A nut on the threaded portion of the spindle pushes against the cone of the smaller outer bearing, thus permitting adjustment.

The outer parts of the bearings (outer races) fit in machined recesses in the wheel hub so that the wheel and spindle form a concentric assembly.

There's a seal where the inner bearing and spindle shoulder meet to prevent lubricant from getting on the brakes. Also, there's a hub cap over the outer end of the spindle to seal the bearings against dirt and water.

Because wheel bearings and their mounting systems vary, always consult a good shop manual for the specific vehicle you're working on before and while doing the job.

When you first remove any bearing, look at the color of the grease and smell it. If it looks almost black (burned) the bearing has probably been running too hot. Another sign of this overheating is an acrid odor.

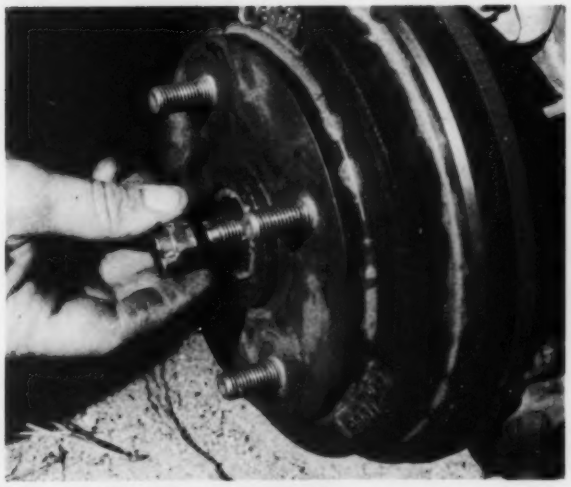
Once the bearings are cleaned and dry, there are several things to look for. Brinnelling is a series of identations in the rollers. Chipping or crumbling on the small ends of the rollers is spalling. Any fine hairline cracks across the cup or cone surface are fractures. Pits or pockmarks similar to spalling but at random locations along the bearings and cups is corrosion. Also similar to spalling is end wear, but it appears on the large ends of the rollers.

If you should find any damage or defect, replace the complete bearing assembly. Failure of one part of the assembly usually means that the same damage can be occurring in the other parts.

Because grit is the enemy of bearings, keep your work area and tools free of dirt and grime when working on them. Even body perspiration can be highly corrosive to wheel bearings, so handle clean bearings with a dry, lint-free cloth only.

Once the wheel is removed, loosen and pull off the grease cap. There's a special tool for doing this, or use a screw driver and a pair of adjustable pliers.

On most vehicles you must remove a cotter pin before loosening the hub nut. However, on this one the mechanic must drive out the peened portion of the hub nut collar first.



Now the hub lock nut can be removed.

Carefully retain the outer bearing when removing the hub.

Wipe the spindle clean with a rag and inspect it for cracks and signs of overheating.

This spindle shows obvious signs of overheating (discoloration) from an overtight lock nut (it, too, had to be chiseled off).

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Pry the inner bearing seal carefully from the hub, remove and discard it.

Remove the inner and outer bearings.

Clean all the hub surfaces.

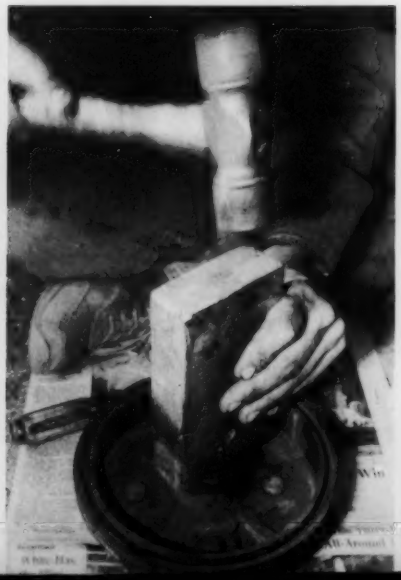
Use a rag to clean the bearings. Solvents can cause problems since it is hard to get them to dry completely. Do NOT use air pressure for drying bearings because it can lead to grit damage of the rollers.

(left) Inspect the bearings and the hub surfaces for looseness, scoring and other signs of damage. **(right) Repack** the bearings by placing a small amount of lubricant in the palm of your hand and forcing it into the sides of the bearings, filling them as much as possible. The grease should reach the top of the roller retainer.

Pack the space in the hub between the inner and outer races with grease.

Install the inner bearing.

Lubricate the tip of a new grease seal.



(right)
Tap the new grease seal into place.

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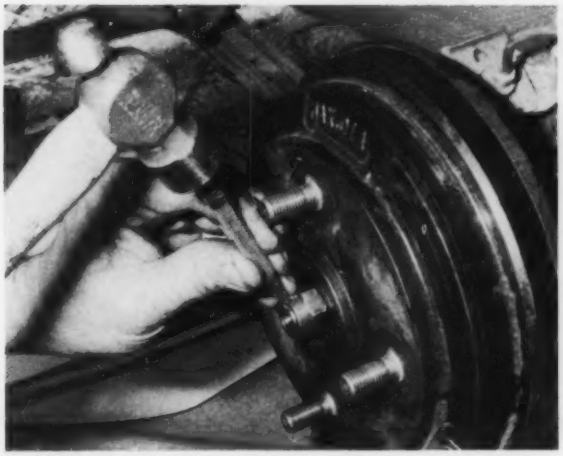
Install the outer bearing.

Carefully holding the outer bearing in place, put the hub back on the spindle.

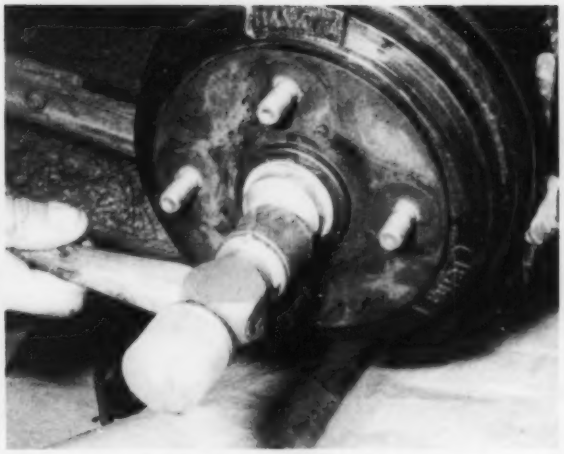
Reinstall the washer.

Then tighten a new hub lock nut to the initial specifications listed in the shop manual.

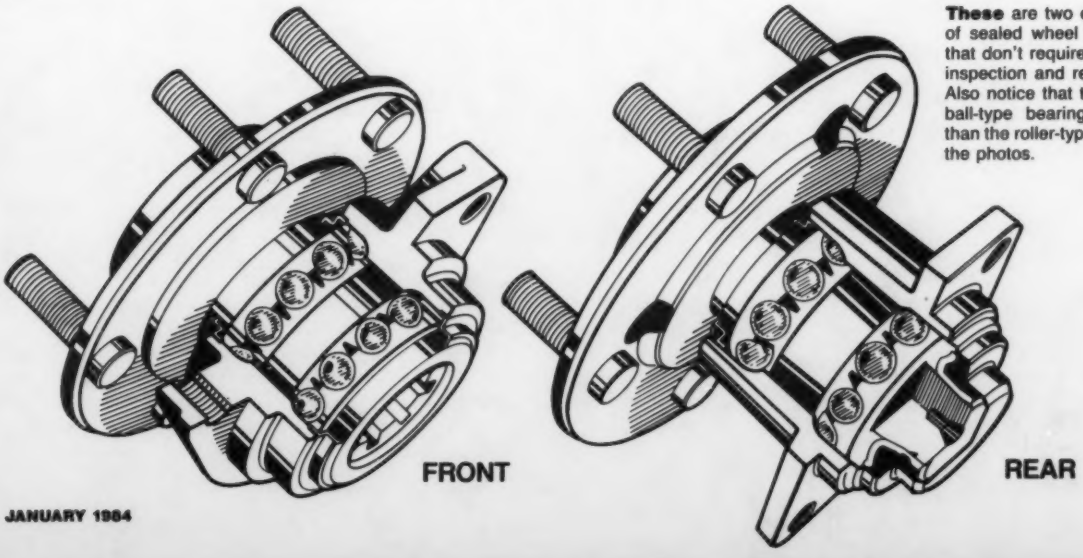
Rotate the hub two or three revolutions to seat the bearings.



After loosening the lock nut one turn and making sure the hub turns freely, tighten the bearing to another set of specifications. Then the lock nut is backed off enough to permit free hub rotation before the collar is staked in place. Most other lock nuts are held in place by new cotter pins.



Tap the grease cap back on and the job is basically done.



These are two examples of sealed wheel bearings that don't require periodic inspection and repacking. Also notice that these are ball-type bearings rather than the roller-type seen in the photos.

tteecc!h!h double tech with tsgt ron lathrop

COMMENT: Your articles on "Skid Control" (September 1983) and "The Cold War" (October 1983) continue to cling to old fashion ideas about driving. An article in the National Safety Council's "Family Safety" (Winter 1982-83) had some "new" ideas on the subject.

Turning into a skid causes confusion. Which way is an automobile skidding? The front of the car appears to go right when in fact the skid is to the left. The National Safety Council recommends you turn into the direction you want the front of the car to go.

REPLY: Actually the National Safety Council admits that they are not offering new ideas on the subject but "new words" to say the same things. The article reads:

"People get confused with the phrase 'Turn in the direction of the skid,' " says Dan Shannon, advanced driver education coordinator at Southern Illinois University. "I've seen people actually turn the wrong way and, of course, the result is that they spin out."

The phrase means that if the back of the car is skidding right, you turn the wheel right; if the back is skidding left, you turn left. But it is thinking in terms of the back of the car that people find confusing. For this reason, driving experts are now telling people to "turn in the direction you want the front of the car to go."

Richard A. "Doc" Whitworth of the General Motors Proving Ground has been using the "new" instruction for 13 years, and is credited with popularizing it. He explains: "If you tell people to keep the front of the vehicle pointed in the direction they want to go, you've given them a definite guideline, since they're looking at the front anyway. Why not utilize that and quit trying to relate to something that's going on behind them? This phraseology takes the guesswork out of it."

Whitworth and Shannon both emphasize that the technique for handling a skid has not changed, only the terminology. The new instructions, they say, are simply easier to understand. If you want the car to go right, turn right; if you want the car to go left, turn left.

I don't think the problem is with terminology, but with experience. Many people have never experienced a skid and have no idea of what one feels like. So when their car does skid, they don't realize it at first. By the time they know they are skidding the car has already passed the critical 20-degree "point of no return" and they lose control. (Once the car has skidded more than 20 degrees off the straight-ahead course you can't pull out of the skid, according to the instructors at the National Safety Council's Winter and Emergency Driving Workshop — March 1982 DRIVER).

However, I do have a problem with the new terminology. It works really well with skids that develop when the car is on a straight path and that is how all the sketches show it. But what happens when the skid occurs in a turn? For example, you're turning into a right-hand corner and the rear of the car skids left. If you follow the new terminology and want the front of the car to go right, you'll turn right and lose control. However, if you feel the rear skidding left and turn left you might regain control.

COMMENT: You recommend a different procedure to control a front-wheel skid. Your recommendation to

declutch a manual transmission and let the front wheels act as brakes may allow a car to gain speed since you have lost all engine braking. You will never regain control if you can't slow down.

REPLY: De-clutching a manual transmission is recommended in all types of skids; front and rear.

First, realize that it is the front of the car that is skidding. That means the front tires are turned, but the car is going straight. Therefore, the front tires are not free-rolling straight ahead. As the September "Skid Control" article said, "As the front wheels are skidding sideways they are acting as brakes." So long as you keep the wheels turned the car is going to slow down (not gain speed) until the wheels stop skidding. And once the front wheels have stopped skidding you've regained control.

Also, with a front-wheel-drive car in a front-wheel skid, the power of engine braking can violently upset the balance of the already unbalanced car. The result is very often the car jumping from a front-wheel skid to a rear-wheel skid so suddenly that there is no hope of regaining control.

COMMENT: Speaking of slowing down, today's lighter automobiles have better brakes than those of the '50s and '60s "muscle cars" many of us learned to drive. Disc brakes can lock-up faster than the older drum style. Locked brakes don't do very much good. A light but constant pressure will stop your car just as well as "pumping" the brakes.

REPLY: The only reason disc brakes seem to lock-up faster than drum style brakes is that they normally require power assistance to operate and many people never develop a feel for these units. However, disc brakes don't always release as quickly as drum brakes when you get down to measuring milliseconds so it is possible that once you've locked them they could stay locked slightly longer than drum brakes would have under the same conditions.

According to the article you recommend in "Family Safety":

Whitworth and Shannon recommend that drivers use the squeeze braking method to stop their cars. Whitworth explains: "We just say squeeze the brake pedal down until you feel the brakes are about to lock up; let off the brake, then squeeze again. With the squeeze braking technique, you can feel when the wheels lock up."

"If you squeeze the brake, you'll slow down very quickly, but you'll keep your tires rolling, which is the key to being able to steer," Shannon says. Squeeze braking, he adds, is the best technique for cars with either disc or drum brakes.

Of course, learning to squeeze the brakes and let off them before they lock is not something a person can master instantly.

I think if you check back issues of DRIVER you'll find that what Whitworth and Shannon call "squeeze braking" is very close to what DRIVER calls "pumping." That is, *not* stomping on the pedal and *not* locking the wheels.

COMMENT: The key to effective winter driving is really simple. As long as you keep traction with all four wheels you can steer and brake with ease. Keeping that traction is the tricky part. Proper tires and matching speed to conditions will keep you out of the ditch.

REPLY: How right you are.

COMMENT: Unleaded gasoline is not available in the Philippines. We advise reporting Navy personnel to have the catalytic converter removed from their late-model U.S.-specification automobile so that the local gasoline can be utilized. This seems like a simple solution.

However, many 1981 and newer U.S. made automobiles use an electronic computer device which regulates engine ignition timing and fuel-air mixtures. These devices sample engine temperature, exhaust gases and other parameters. I have read that removing the catalytic converter from some of these vehicles can cause the engine computer to "misunderstand" the situation and shift engine timing to full retard with resulting loss of performance and economy.

What advice should we offer to owners of late-model American manufactured automobiles? Is my assumption that simply removing the catalytic converter is not a complete solution correct? Do you know of a proper solution to the problem?

REPLY: The proper solution varies from vehicle to vehicle, and, of course, depends on what overseas country the vehicle is being shipped to.

Basically you're right. Removing just the catalytic converter is too simple a solution and can lead to many other problems including permanent engine damage.

The best answer is contained in the American Forces Information Service publication "It's Your Move . . ." (DoD PA-13B). This Department of Defense pamphlet says, "If you plan to take a 1981 or later model POV overseas, ask your automobile dealer exactly what is required to deactivate the emissions control system and then get it back within U.S. emissions control standards when you return from overseas."

The key to doing the job right is an authorized dealer who has access to the correct information. Any second-hand information such as "just remove the catalytic converter" or "go ahead and burn regular and worry about it when it comes time to return" can end up being very, very expensive advice.

You may have the changes made anywhere in the continental United States by getting an Environmental Protection Agency waiver letter at your local transportation office.

Notice that you must also know the emission status of the country the car is being shipped to as well as the U.S. standards. For example, DoD transportation agencies will not ship cars built to U.S. specifications after March 31, 1976, to Japan or Okinawa because their emissions standards are too expensive to meet.

EDITOR'S NOTE: If you have a general interest automotive comment that you would like a reply to, and feel that others could use the information also, send it to:

DOUBLE TECH
DRIVER MAGAZINE
HQ AFISC/SEDD
NORTON AFB, CA 92409

Backfire
LETTERS to the EDITOR

THE AIRMAN BEHIND THE CURTAIN

Recently I was a patient in the hospital at Edwards AFB, quartered in a room containing two beds, the beds were separated by a sliding curtain to assure individual privacy. One morning, quite early, I was awakened as a new patient was being moved into the other bed behind the closed curtain. He moaned faintly and was reduced to violent and apparently painful coughing spells. It sounded as though he was barely conscious and his speech was slurred and hesitant.

Doctors were asking him elementary questions such as his name, where he was, who was president of the US, and what was his rank, did he know what happened to him, the year and other related questions. His answers were slow to come and often wrong. The doctor would give him a number and ask him to repeat it and he was not always correct in the repetition. He had just come from several hours of neurosurgery at UCLA and it sounded as if he was in bad condition.

Before they removed the curtain I learned that he had many broken bones in addition to severe head injuries, all sustained when he crashed his high-performance motorcycle into a wall. A passenger on the motorcycle was in another room in the hospital suffering from extended injuries, although his head injuries were not so critical. Both men were young, perhaps in their very early twenties.

After a few days the man in the bed next to me became more coherent and seemed more concerned about the condition of his motorcycle and some fancy leather motorcycle clothing that was destroyed in the accident. He continued to be vague and hesitant in speech, although he gained enough physical strength and balance to be able to get out of bed to attend to natural physical demands.

Almost hourly he was asked many personal questions over and over, and although he showed some slow improvement he was still far from what I believed to be normal. Finally, after about a week some people, who I assumed were a safety or accident investigating group, visited him and asked many pertinent questions regarding the accident. A natural question was "Did you have protective helmets?" The young man muttered a feeble "yes" and then after a long pause added that the helmets were not being worn but were suspended by their straps from the structural sides of the motorcycle.

A nurse who attended us both was a witness to the questioning and after learning that the helmets were available but not worn, observed, "Safety helmets are somewhat like birth control pills; they don't do a whole lot of good unless used."

Maj. Grover C. Tate, USAF (Ret)
Zihuatanejo, Gro., Mexico

IT'S NOT A FOOLISH QUESTION

I have recently spent the better part of seven hours reading back issues of DRIVER and have come to the conclusion that DRIVER staff writers and some readers think that if a motorcyclist dresses up like a rainbow and wears a helmet then he's a real nice, mature and thoughtful fellow. But if that same motorcyclist doesn't, then he's immature, ignorant, and an outlaw biker. Don't say you don't portray that image.

Anti-helmet law activists aren't really against helmets! We are against being *forced* to wear helmets. People who drive convertibles aren't forced to wear them, Jeepsters aren't forced to, rodeo participants aren't forced to (and I've rodeoed a few years), hazardous occupations aren't forced to wear helmets. So why the motorcyclist?

I agree wholeheartedly that helmets will prevent cranial damage in an accident, and all your facts and figures are probably right, even though I believe that each poll taker will sway each study to reflect what he/she wants it to reflect. Cigarettes and alcohol kill people every day, but there is no prohibition against them. I guess DOT workers smoke and drink. I don't mean to get off the path and throw darts, but do you see my point? If I want to take a chance on spilling my gray matter all over the pavement, that should be *my* choice. Please don't argue that crap about somebody having to foot my bills for medical expenses if I'm injured. The way the government throws away my tax money it all comes out even. By the way, who foots the bill for all the aforementioned when they are injured?

You or any other pro-helmet law activist would not want a mandatory no-helmet law because you prefer to wear one. By the same token I prefer not to. The right to swing your arm stops where the other person's nose begins.

I really don't like to argue a point through correspondence. I know I'll be called a fool, an idiot, ignorant and other things that do not relate to me, but I stand firm in the belief that it is my right to decide whether or not to wear a helmet. And I may not believe everything pro-helmet law people say, but I'll defend to the death their right to say it.

I do not think I should be forced to wear a helmet if I choose not to, and I am not going to let the presence of graveyards keep me off my motorcycle. So my motto remains "Helmet laws — not helmets — suck!"

GMG1 Pal Stevens, USN
Dallas, TX 75211

The question you raise is a serious one and certainly no one here would call you foolish for raising it. The question isn't really about helmets, though; it's about government and how far one believes government should go in protecting us. Almost everyone agrees government should protect us from contaminated drinking water and untested prescription drugs. Most people believe government should protect us from accidents in the work place — that's what OSHA is all about. But when it comes to laws requiring use of helmets and seat belts, a lot of us think our personal rights are being infringed upon.

Look at it another way. You say you know a helmet will help keep you from spilling your brains on the pavement. How about the 18-year-olds who have just come into the military and are buying their first motorcycle? Do they know it? How many would even buy helmets if they weren't required to wear one while riding on the installation?

It's one thing to take a risk when you understand what the risk is. But it's another thing to get killed before you even know you're taking one. Educating people to understand what protective equipment can do for them takes a painfully long time. Maybe laws requiring helmets and seatbelts aren't a perfect answer. But what other answer is there?

CUPPING THE REAR TIRES

Referring to the article on cupping of rear tires on 1982 front-wheel-drive cars in your October 1983 issue, I have a 1980 front-wheel-drive Pontiac Phoenix that had the same problem. I replaced the rear shocks (heavy duty) and that solved the problem. It's a good practice to replace original shocks at 15,000. It saves money in the long run.

Joseph E. Williams, USA
Ft. Gordon, GA 30905

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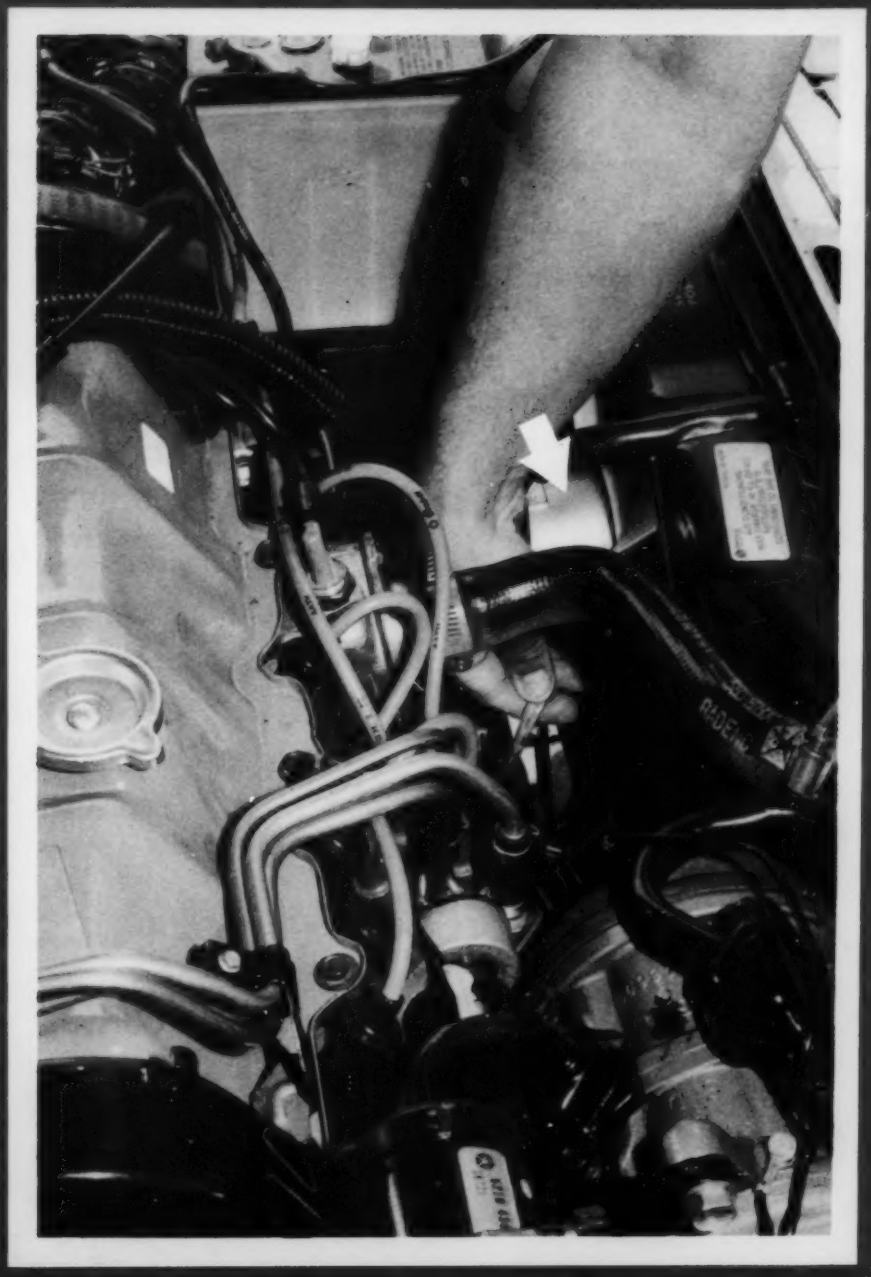
Sign Language



More and more engines, especially those with four cylinders, are equipped with an electronically controlled fan for the cooling system. Their electrical system includes a "heat sensitive" sensor and a relay. These fans only begin to operate when coolant temperature reaches a preset level or whenever the air conditioning is turned ON.

Many of these electro-fan motors will even start functioning with the engine off and the ignition key removed. This can occur whenever the engine reaches "hotsoak" temperature (coolant heat increases after shut-down) such as after hard driving.

Without trying to list those cars that can "trigger" the fan motor with key OFF, (some do, some don't) we want to say it is good pracatice to disconnect the battery ground cable whenever it is necessary to work around the area of the fan blades.

Remember, some of those fans spin up to 35 revolutions per second and if your fingers are in the way . . . well we're sure you'd have a lot of trouble using sign language.

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